Science, Technology & Infusion Performance Measures & Milestones

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NOAA Hydrometeorology Testbed (HMT)
Planning Meeting
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Realities

- Greater emphasis on Performance Measures this coming year
- Idea of “projects” is beginning to surface and GANT chart or equivalent will be required in PBA
- R&D will need to be linked to GPRA or Corp Measures
- Performance measures are key part of the Quarterly Reports

Challenges

- Current GPRAs or Corporate measures don’t represent breadth of NOAA mission
- Developing meaningful performance measures that are based on outcomes and impacts.
- Defining how R&D components contribute to GPRA and Corp measures
- Defining performance measures on which the research and operations community can agree
- Establishing R&D baselines and realistic but challenging goals or objectives

Current Water Related Performance Measures

Measure	FY 04 Actual	FY 05 Goal	FY 06 Goal	FY 07 Goal	FY 08 Goal	FY 09 Goal	FY 10 Goal	FY 11 Goal	FY 12 Goal
Flash Flood Warning – Lead Time (minutes)	47	48	48	49	49	50	50	51	
Flash Flood Warning – Accuracy (%)	89	89	90	90	90	91	91	91	
Precipitation Forecasts – Day 1 Threat Score	25	27	28	29	28	29			

So What Did ST&I Do to Create Water Related Performance Measures for FY 05?

(Note: Last year's PPBES process covered 2007-2011)

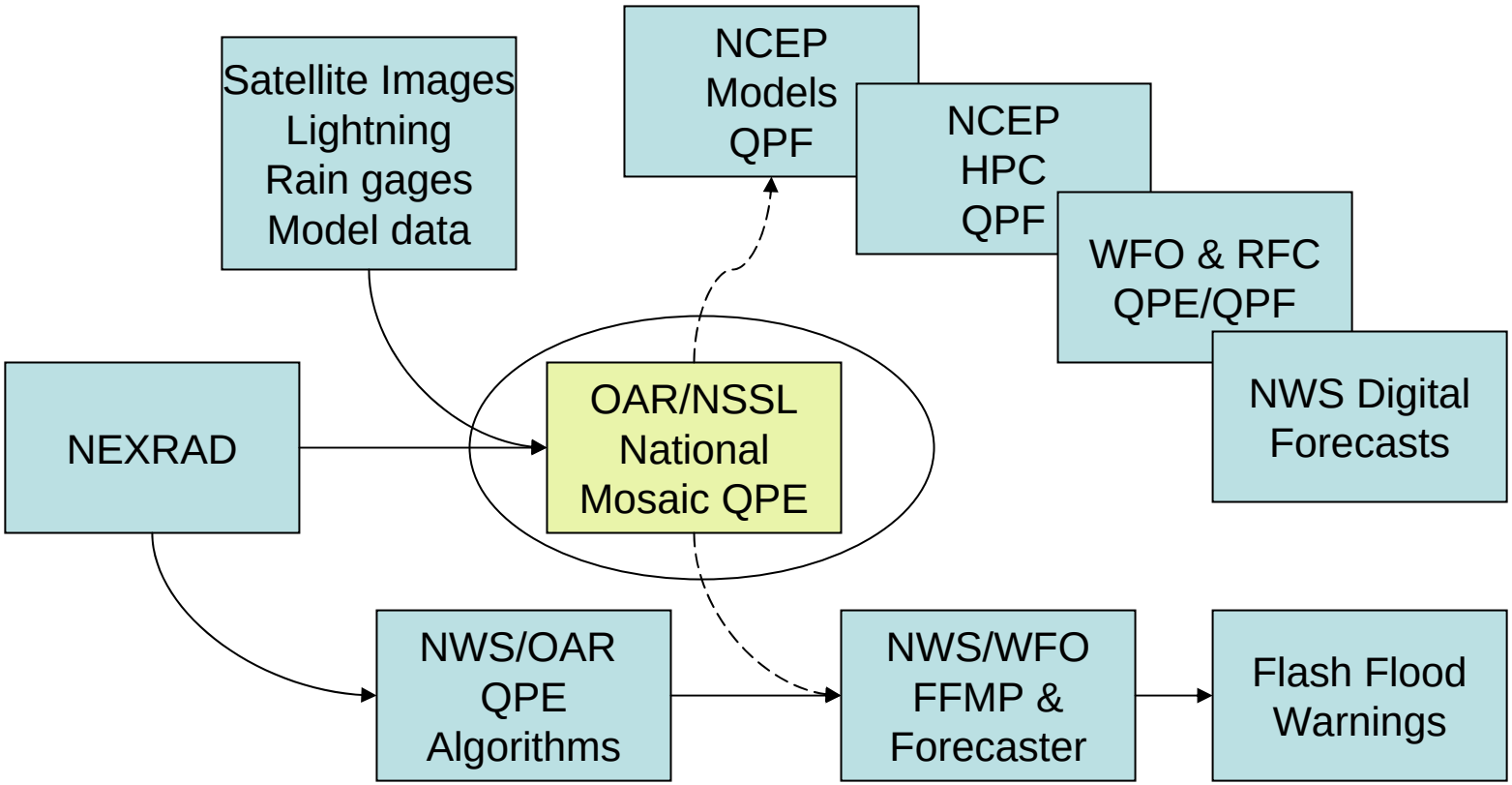
- Current NEXRAD
  - Milestone: Demonstrate prototype semi-operational high-resolution, multi-sensor, mosaic QPE product for CONUS on 1 km grid. FY05 Quarter 4
  - Performance Measure: Improve on current spatial QPE resolution (1 degree by 1 km) and accuracy of radar centric products by demonstrating a multisensor, seamless 1km x 1km national coverage QPE product with a five-minute refresh cycle.

So What Did ST&I Do to Create Water Related Performance Measures for FY 05? (cont.)

- Dual Polarized Radar
  - Milestone: Complete a research study to demonstrate improved accuracy of QPE measurements. FY05 Quarter 4
  - Performance Measure: Demonstrate reduced QPE point error measurements (i.e., radar vs rain gauge) by a factor of ~ 2, and an areal rainfall error measurements (i.e., WSR-88D radar vs Dual Polarized radar over a watershed basin) by a factor of ~ 4

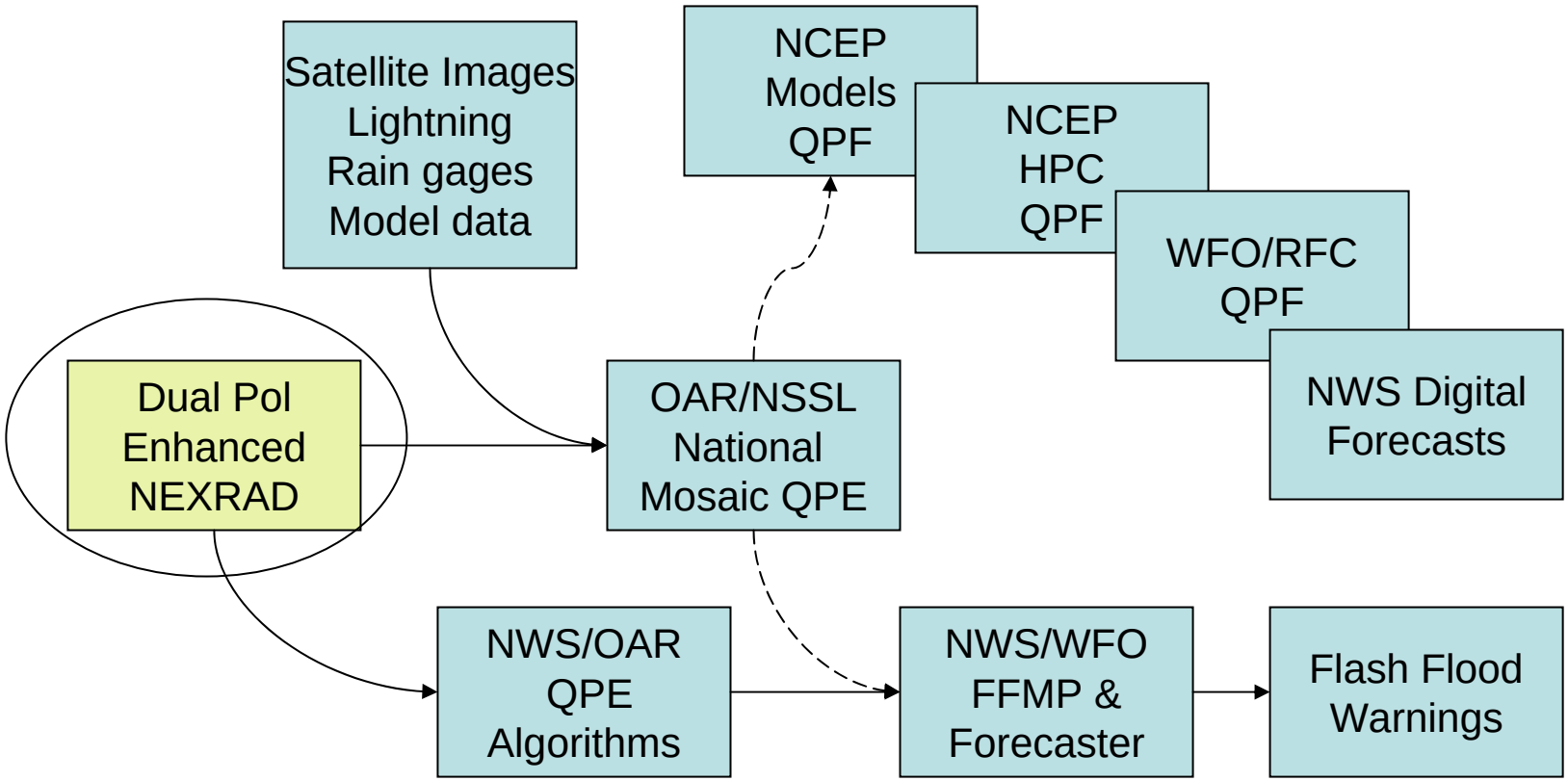
Flash Flood Forecasting Using Today's NEXRAD

(data flow chart)



Flash Flood Forecasting
Using Dual Pol Enhanced NEXRAD

(data flow chart)



STI Performance Measures

- Summary

NOAA Corporate Performance Measures	ST&I Capabilities	NOAA Research Capacities	ST&I Performance Measures	ST&I Milestones
Lead-Time and Accuracy for Flash Flood	R&D for Water Resources	NEXRAD	Improve spatial resolution from 1 degree x 1km to 1 km x 1 km	Demonstrate pre-transition high-resolution multisensor & multiradar mosaiced radar product for CONUS (Q4)
Lead-Time and Accuracy for Flash Flood	R&D for Water Resources	Dual Pol Radar	• Reduce QPE point error measurements by a factor of 2 • Reduce QPE areal rainfall error measurements by a factor of 4	Demonstrate improved accuracy of QPE measurements

So What's the Problem?

- ST&I only loosely linked our research performance measures to the flash flood performance measures
  - We have not defined how we will measure whether these performance measures will improve flash flood prediction
- We don't have a multiyear schedule
  - We don't have a game plan for testing contributions to the flash flood forecasting
  - We don't have a documented research to operations transition plan

What is ST&I Doing About These Problems?

- We are forming a Water Resources research Capability team,
- We are charging the team with defining & documenting what ST&I's Water Resource themes (or thrusts or projects) should be as they relate to the Local Forecasts and Warnings and the Hydrology Program,
- We are asking them to develop or refine existing ST&I performance measures and milestones,
- And to prepare the necessary resources estimates to support these themes for the PPBES process

So How Does this Relate to HMT?

- HMT represents an environment to carry out science and technology evaluations, and a way in which to facilitate their infusion into operations
  - For example:
    - FFMP is not used in the west because current NEXRAD coverage is inadequate. HMT can be used to evaluate the contribution of gap filling radars to improved the quality of the national QPE mosaic so it can serve as a useful input to FFMP.

In Summary

- ST&I and all of the Programs are being charged with coming up with output and outcome relevant milestones and performance measures (and the corresponding documentation)

- These measures necessarily must clearly support NOAA GPRA and Corp measures

- The HMT activities must support Wx&W Programs in achieving milestones and performance measures